Application No.: 09/677,870 Attorney Docket No. 2658-0240P Art Unit 2883 Reply to January 26, 2006 Office Action

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A thin film transistor substrate with a circuit repair feature in a liquid crystal display, said substrate comprising:

a data line for applying a data signal to a pixel electrode <u>via a thin film</u> <u>transistor on the substrate</u>;

a gate line, disposed substantially perpendicular to said data line for applying a gate signal to the thin film transistor to said pixel electrode, an extended portion of said gate line providing a gate dummy pattern parallel to said data line and extending substantially the entire length of the pixel electrode portion adjacent and parallel to the data line to overlap with at least one edge portion of said data line and an edge portion of the pixel electrode.

- 2. (Canceled)
- 3. (Previously Presented) The thin film transistor substrate according to claim 1, wherein when the said data line is broken, said gate dummy pattern is used as a redundancy electrode for electrically connecting said broken data line.
- 4. (Previously Presented) The thin film transistor substrate according to claim 3, wherein said gate dummy pattern includes a recess formed to permit a repair by disconnection of said gate dummy pattern from said gate line.

Application No.: 09/677,870 Attorney Docket No. 2658-0240P
Art Unit 2883 Reply to January 26, 2006 Office Action

Page 3 of 33

5. (Previously Presented) The thin film transistor substrate according to

claim 1, wherein said gate dummy pattern is used as a black matrix.

6. (Previously Presented) The thin film transistor substrate according to

claim 1, further comprising:

a storage capacitor defined by an overlapping part between said gate line

and said pixel electrode.

7. (Previously Presented) The thin film transistor substrate according to

claim 4, further comprising:

a protrusion protruded from said data line formed in such a manner as to

overlap with said recess, thereby shutting off a light leaked between said gate

dummy pattern and said gate line.

8. (Previously Presented) The thin film transistor substrate according to

claim 1, wherein a gate-insulating layer is formed between said gate dummy

pattern and said data line.

9. (Previously Presented) The thin film transistor substrate according to

claim 4, wherein said recess is provided at a cutting part for breaking said gate

Application No.: 09/677,870 Attorney Docket No. 2658-0240P

Art Unit 2883 Reply to January 26, 2006 Office Action

Page 4 of 33

dummy pattern from said gate line in such a manner that said recess is not

overlapped with said broken data line.

10. (Currently Amended) A thin film transistor substrate with a circuit

repair feature in a liquid crystal display, said substrate comprising:

a pixel electrode for driving a liquid crystal cell;

a data line for applying a data signal to said pixel electrode via a thin film

transistor on the substrate;

a gate line disposed substantially perpendicular to said data line for

applying a gate signal to said pixel electrode the thin film transistor, an extended

portion of said gate line providing a gate dummy pattern parallel to said data line

and extending substantially the entire length of the pixel electrode portion

adjacent and parallel to the data line to overlap by about 0.5-1 µm with an edge

portion of said data line and an edge portion of said pixel electrode, to thereby

serve as a black matrix to shut off light leaked between said data line and said

pixel electrode.

11. (Canceled).

Application No.: 09/677,870 Attorney Docket No. 2658-0240P
Art Unit 2883 Reply to January 26, 2006 Office Action

Page 5 of 33

12. (Previously Presented) The thin film transistor substrate according to

claim 10, wherein when said data line is broken, said gate dummy pattern is used

as a redundancy electrode for electrically connecting said broken data line.

13. (Previously Presented) The thin film transistor substrate according to

claim 12, wherein said gate dummy pattern includes a recess formed to permit a

repair by disconnection of said gate dummy pattern from said gate line.

14. (Canceled)

15. (Previously Presented) The thin film transistor substrate according to

claim 10, further comprising:

a storage capacitor defined by an overlapping part between said gate line

and said pixel electrode.

16. (Previously Presented) The thin film transistor substrate according to

claim 13, further comprising:

a protrusion formed in such a manner to overlap with said recess, thereby

shutting off a light leaked between said gate dummy pattern and said gate line.

Attorney Docket No. 2658-0240P Application No.: 09/677,870 Reply to January 26, 2006 Office Action

Page 6 of 33

(Previously Presented) The thin film transistor substrate according to 17.

claim 10, wherein a gate-insulating layer is formed between the said gate dummy

pattern and said data line.

Art Unit 2883

(Previously Presented) The thin film transistor substrate according to 18.

claim 13, wherein said recess is provided at a cutting part for breaking said gate

dummy pattern from said gate line in such a manner that said recess is not

overlapped with said data line.

(Canceled) 19-20.

21. (Previously Presented) The thin film transistor substrate according to

claim 1, wherein said gate dummy pattern is formed to cover substantially all of a

gap between at least one of the edge portions of said data line and an edge portion of

said pixel electrode.

22. (Previously Presented) The thin film transistor substrate according to

claim 6, wherein an overlap portion of said gate dummy pattern and an edge

portion of said pixel electrode with a gate insulating layer therebetween, forms an

auxiliary storage capacitor.

Application No.: 09/677,870

Art Unit 2883

Attorney Docket No. 2658-0240P Reply to January 26, 2006 Office Action

Page 7 of 33

23. (Previously Presented) The thin film transistor substrate according to

claim 10, wherein said gate dummy pattern is formed to cover substantially all of a

gap between at least one of the edge portions of said data line and an edge portion

of said pixel electrode.

24. (Previously Presented) The thin film transistor substrate according to

claim 15, wherein an overlap portion of said gate dummy pattern and an edge

portion of the pixel electrode with a gate insulating layer therebetween, forms an

auxiliary storage capacitor.

25. (Currently Amended) A thin film transistor substrate with a circuit

repair feature for a display device, the thin film transistor substrate comprising:

a data line disposed in a first direction;

a gate line disposed in a second direction which crosses the first direction,

a protruded portion of said gate line being disposed parallel to said data line to

form a gate dummy pattern splitting off into first and second extension parts

extending from said gate line in the first direction and separated from each other,

said first extension part disposed below a first edge portion of said data line and a

side portion of an adjacent pixel electrode, said second extension part disposed

below a second edge portion of said data line extending substantially the entire

length of the pixel electrode portion adjacent and parallel to the data line, and a

Application No.: 09/677,870

Art Unit 2883

Attorney Docket No. 2658-0240P Reply to January 26, 2006 Office Action Page 8 of 33

side portion of another adjacent pixel electrode, said first and second edge portions being opposite edge portions of said data line.

- 26. (Previously Presented) The thin film transistor substrate of claim 7, wherein the gate dummy pattern and the protrusion of the date line are used as a black matrix to result in an aperture ratio increase of from about 5 to 6%.
 - 27. (Previously Presented) The thin film transistor substrate of claim 1 further comprising a pixel electrode made of Indium Tin Oxide positioned at a portion of the substrate divided by the gate line and the data line